

COMPOSITION FOR SURFACE TREATMENT OF RUBBER PRODUCT

Patent number: JP61098747
Publication date: 1986-05-17
Inventor: SUGIURA KAZUO; others: 03
Applicant: JAPAN SYNTHETIC RUBBER CO LTD; others: 01
Classification:
- International: C08J7/04; B32B25/08; C08L83/07; C09D3/82
- european:
Application number: JP19840221542 19841022
Priority number(s):

Abstract of JP61098747

PURPOSE:The titled composition suitable for packing, capable of forming a cured film having nonadhesion and slipperiness on the surface of rubber product, comprising a specific polyorganosiloxane, an organic solvent and/or a surface active agent and water, and a curing catalyst.
CONSTITUTION:(A) A polysorganosiloxane having an average composition formula $RaSiO(4-a)/2$ [R is monofunctional (substituted)hydrocarbon (e.g., alkylidene norbornyl group, etc.), wherein at least 2 R in the molecule are monofunctional hydrocarbon groups which have at least 5 carbon atoms, and a carbon-carbon double bond through at least one carbon atom from silicon atom, and the number of the hydrocarbon groups is 0.05-10 mol % based on the total organic groups; a is 1.9-2.1] having ≥ 20 , preferably $\geq 1,000$ -average polymerization degree is blended with (B) an organic solvent (e.g., benzene, etc.) and/or a surface active agent and water, (C) a curing agent, and, if necessary, (D) ≤ 95 wt.% based on the total of the components A and D of organic rubber.

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MOLECULAR WEIGHT FRACTIONATION OF LADDER-TYPE SILICONE RESIN

Patent number: JP61127732
Publication date: 1986-06-16
Inventor: MIYAGAWA MASASHI; others: 04
Applicant: FUJITSU LTD
Classification:
- international: C08G77/32
- european:
Application number: JP19840250912 19841128
Priority number(s):

Abstract of JP61127732

PURPOSE: To carry out the titled fractionation in high reproducibility, by dissolving a silylated silsesquioxane polymer in a solvent having the maximum average molecular weight to be fractionated as the limit of soluble molecular weight, and precipitating the polymer from the solution by the addition of a solvent having the minimum average molecular weight to be fractionated as the limit of soluble molecular weight.

CONSTITUTION: For example, a component having a molecular weight of $1-5 \times 10^4$ is fractionated from a silylated silsesquioxane polymer (e.g. polymethyl silsesquioxane), by dissolving the component having a weight-average molecular weight (M_w) of $\leq 5 \times 10^4$ in a solvent having the maximum average molecular weight to be fractionated as the limit of soluble molecular weight (e.g. isopropanol), removing the insoluble component, adding a solvent having the minimum average molecular weight to be fractionated as the limit of soluble molecular weight (e.g. methanol) to effect the precipitation of the component having M_w of $> 1 \times 10^4$, and recovering the precipitate.

EFFECT: The obtained resin has excellent sharpness and sensitivity when used as an electron beam resist.

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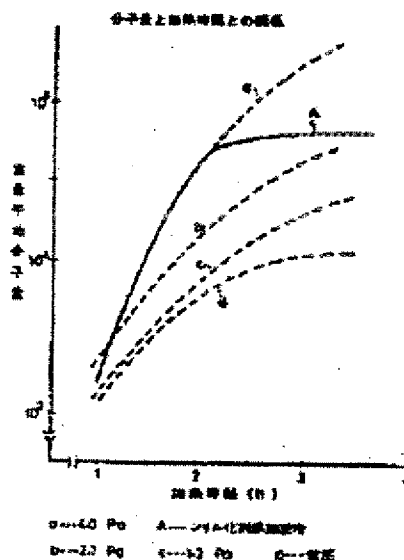
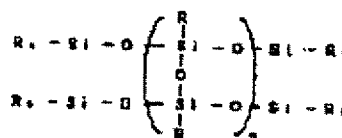
PRODUCTION OF SILYLATED POLYORGANOSILSESQUIOXANE

Patent number: JP61221232
Publication date: 1986-10-01
Inventor: FUKUYAMA SHUNICHI; others: 04
Applicant: FUJITSU LTD
Classification:
 - International: C08G77/06; C08G77/32
 - european:
Application number: JP19850062128 19850328
Priority number(s):

Abstract of JP61221232

PURPOSE: To obtain the titled polymer having an arbitrary MW in a specified range, by polycondensing an organotrihydroxysilane to the desired MW by heating under a pressure in the presence of a catalyst and stopping the polycondensation by adding a silylating agent to the reaction system.

CONSTITUTION: An organotrihydroxysilane obtained by the hydrolysis of an organotrichlorosilane is polycondensed by heating under a pressure of N₂ in the presence of an organic amine (e.g., triethylamine) as a catalyst. The weight-average MW increases with the lapse of time. When this MW reaches the desired value, the polycondensation is stopped by adding a silylating agent such as an organomonohalogenosilane or an organomonoisocyanatosilane to the reaction system to obtain a silylated polyorganosilsesquioxane (polymer) of the formula (wherein n is 50-5,000 and R is CH₃, C₂H₅ or phenyl) having any desired weight-average MW within the range of from 10⁴ to 10⁵.



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FORMATION OF PASSIVATION FILM

Patent number: JP61224330
Publication date: 1986-10-06
Inventor: FUKUYAMA SHUNICHI; others: 04
Applicant: FUJITSU LTD
Classification:
- International: H01L21/312
- european:
Application number: JP19850063359 19850329
Priority number(s):

Abstract of JP61224330

PURPOSE: To form a passivation film in sufficient thickness by a method wherein a protective passivation film is formed on the surface of semiconductor device such as LSI, magnetic bubble memory element etc. by means of coating the surface with silylated polyorganosilsesquioxane solution evaporating the solvent to solidify the solution by heating the solution up to 200-400 deg.C.

CONSTITUTION: A semiconductor substrate whereon an Al wiring is formed is coated with 4-methyl-2-pentanone solution of silylated polymethylsilsesquioxane with mean molecular weight of 3.0×10^4 to be heated up to 200-400 deg.C firstly for evaporating the solution. Next the substrate is heat-treated at 350 deg.C for around one hour melting resin to form a passivation film e.g. 2μm in sufficient thickness. Through these procedures, the substrate even if with irregularities can be provided with excellent step coverage comprising fine film to improve the reliability of semiconductor device.

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ALKALI-SOLUBLE SILOXANE POLYMER

Patent number: JP61256347
Publication date: 1986-11-13
Inventor: SUGIYAMA HISASHI; others: 02
Applicant: HITACHI LTD
Classification:
- **International:** G03C1/71; C08G77/14; G03C1/00; G03F7/00
- **European:**
Application number: JP19850098032 19850510
Priority number(s):

Abstract of JP61256347

PURPOSE: To obtain a polymer superior in oxygen plasma resistance by incorporating a specified unit in a siloxane skeleton.

CONSTITUTION: The siloxane skeleton contains, in an amt. of $\geq 40\text{mol}\%$, essential units each represented by the formula shown on the right in which R1 is H or a monovalent org. group except an aromatic group; R2, R3 are each H, Cl, or a monovalent org. group; l is an integer of 1-6; and k is 1 or 2. Since this siloxane polymer is soluble in general-purpose org. solvents, it can be formed into a film, and since it is soluble in aq. alkaline solns., it can be used as an alkali-developable positive type resist by combining it with o-quinonediazides and as an alkali-developable negative type resist by combining it with bisazides, and this siloxane polymer itself alone can be used as an alkali-developable negative type electron beam resist, and it can be used as an alkali-developable positive type electron beam resist by combining it with poly(olefinsulfone).

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FORMATION OF RESIST PATTERN

Patent number: JP61260242
Publication date: 1986-11-18
Inventor: MIYAGAWA MASASHI; others: 04
Applicant: FUJITSU LTD
Classification:
- **international:** G03C5/24; G03C1/00; G03F7/00; H01L21/30
- **european:**
Application number: JP19850102942 19850515
Priority number(s):

Abstract of JP61260242

PURPOSE: To eliminate swelling and to execute a developing process without the generation of scum by adding a poor solvent to a good solvent of polymethylsilsesquioxane (PMSS) at the highest possible ratio within a range where the development residues are not formed.

CONSTITUTION: After a lower layer resist is provided on an Si substrate, a 4-methyl-2-pentanone soln. of PMSS is coated thereon and is prebaked to form an upper layer resist. A pattern is drawn thereon and thereafter the substrate is immersed in a soln. mixture composed of 4-methyl-2-pentanone and ethanol and is developed, then the substrate is immersed in isopropanol and is subjected to a rinse treatment. The upper layer resist is thereby developed and the PMSS pattern having no scum is formed on the lower layer resist at 0.3µm line and space.

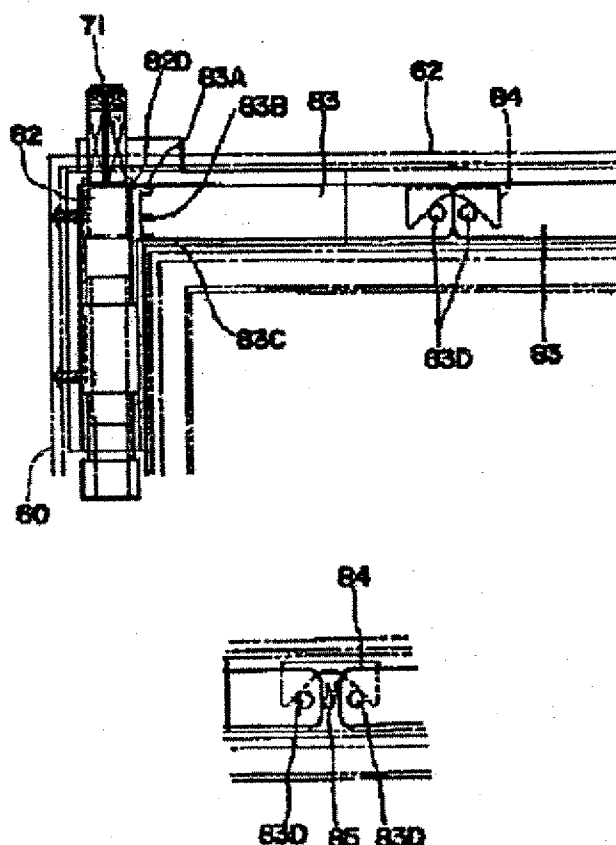
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BOTH-SHAFT SLIP-OFF PREVENTIVE DEVICE

Patent number: JP6129153
 Publication date: 1994-05-10
 Inventor: SHIGARAKI GINICHI; others: 03
 Applicant: MISAWA HOMES CO LTD; others: 02
 Classification:
 - international: E05D15/50; E06B3/36
 - european:
 Application number: JP19920281764 19921020
 Priority number(s):

Abstract of JP6129153

PURPOSE: To provide a safety device for a double-hinged window, in which a window frame is not slipped off from a sash frame.
CONSTITUTION: A window-frame support shaft controller 80 preventing retreat into a window frame 60 of both parallel window-frame support shafts 71 is provided, and the window-frame support shaft controller 80 has control receiving materials 82 installed to the two adjacent window-frame support shafts 71 and an on-opening control member 83 positioned between the two control receiving materials 82. The on-opening control member 83 has an on-opening biasing means for moving the on-opening control member 83 to the two control receiving materials 82, and engaging means 82D, 83A, 83C, with which the control receiving materials 82 and the on-opening control member 83 are engaged, are mounted to the control receiving materials 82 and the on-opening control member 83. The on-opening biasing means 84, 85 are formed so as to interlink the engaging means when the window frame 60 is opened to a sash frame 40 and release the engaging means when the window frame 60 is closed to the sash frame 40.



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POLYIMIDE COMPOSITION

Patent number: JP62027417
Publication date: 1987-02-05
Inventor: GOTO KOHEI; others: 01
Applicant: JAPAN SYNTHETIC RUBBER CO LTD
Classification:
- International: C08G18/64
- european:
Application number: JP19850168395 19850730
Priority number(s):

Abstract of JP62027417

PURPOSE: To obtain a polyimide composition improved in solvent resistance and chemical resistance, by mixing a specified organic solvent-soluble polyimide with a polyisocyanate derivative having a functional group which can form an isocyanate group.

CONSTITUTION: A polyimide composition containing at least one organic solvent-soluble polyimide selected from among organic solvent-soluble polyimides obtained from at least two compounds (A) belonging to different aromatic tetracarboxylic acids and at least one aromatic diamine of the formula (wherein X is -O-, -S-, -CO-, -SO₂-, -CONH- or the like) and organic solvent-soluble polyimides obtained from at least one compound belonging to 3,3',4,4'-benzophenonetetracarboxylic acid and at least two aromatic diamines of the formula and a polyisocyanate derivative (B) having at least two functional groups which can form isocyanate groups by heating in the molecule.

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ALAKLI-SOLUBLE SILMETHYLENE POLYMER

Patent number: JP62043426
Publication date: 1987-02-25
Inventor: SUGIYAMA HISASHI; others: 02
Applicant: HITACHI LTD
Classification:
- International: C08G77/60; G03C1/71; G03C5/16
- european:
Application number: JP19850182950 19850822
Priority number(s):

Abstract of JP62043426

PURPOSE:The titled polymer, consisting of constituent units expressed by a specific structural formula, having the backbone chain of silmethylenes skeleton and phenolic hydroxyl groups in the side chain thereof, capable of forming films, having improved oxygen plasma resistance and suitable for photosensitive, radiosensitive materials, etc.

CONSTITUTION:An alkali-soluble silmethylenes polymer consisting of constituent units expressed by formula I [R1-R3 are monofunctional organic group; R4 is alkyl; l is 1 or 2; m and n are positive integers; $m+n=2-200$; $n/(m+n) \geq 0.4$]. For example, the polymer is obtained by reacting a dihalogenosilane expressed by formula II (X1 is halogen or alkoxy), etc., with a Grignard reagent expressed by formula III (X2 is halogen) to synthesize a monohalogenosilane expressed by formula IV, etc., halogenating the resultant compound by photochlorination or using N-chlorosuccinimide, etc., to form a compound expressed by formula V, polymerizing the resultant compound expressed by formula V with a metal, e.g. Mg, to give a polymer expressed by formula VI and converting the protecting group OR4 into OH group utilizing reaction of trimethylsilyliodine/methanol, etc.

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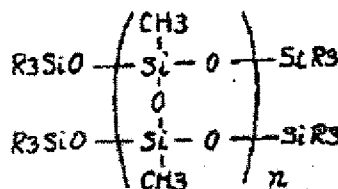
PRODUCTION OF HEAT RESISTANT INSULATING PATTERN

Patent number: JP62056956
Publication date: 1987-03-12
Inventor: FUKUYAMA SHUNICHI; others: 02
Applicant: FUJITSU LTD
Classification:
 - International: G03C1/71; G03C5/00
 - european:
Application number: JP19850197329 19850906
Priority number(s):

Abstract of JP62056956

PURPOSE: To form a pattern of a good thermal shock having excellent heat resistance by forming a thin layer of a specific silicone resin on a substrate to be treated and flattening the surface by heating and melting particularly when the substrate has a step then irradiating a pattern thereon.

CONSTITUTION: The silylated polymethyl silsequioxane which is expressed by formula and is dissolved in a solvent is coated on the substrate to be treated such as semiconductor substrate and is dried; thereafter, the surface is flattened by heating and melting the coating polymer up to the m.p. if the substrate has the step; thereafter, the pattern is irradiated thereon by ionization radiation to crosslink the polymer in the irradiated part. The polymer in the non-irradiated part is dissolved away by using a solvent. The soln. prepd. by dissolving such silicone polymer into a solvent can be spin-coated and can be easily formed to the pattern. The substrate having the considerable steps can be flattened. The above-mentioned polymer withstands ≥ 500 deg.C heat treatment and is crack-free in spite of a temp. change. The pattern is thus made usable for LSIs, VLSIs, etc.



但し RはHまたはメチル基、エチル基、
 nは300以上、好ましくは300-500

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TONER FOR ELECTROPHOTOGRAPHY

Patent number: JP62067561
Publication date: 1987-03-27
Inventor: KATAGIRI YOSHIMICHI; others: 03
Applicant: FUJITSU LTD
Classification:
- **International:** G03G9/08
- **European:**
Application number: JP19850208202 19850920
Priority number(s):

Abstract of JP62067561

PURPOSE: To improve the fluidity of a toner without affecting the electrostatic chargeability thereof by using the toner which is held stuck with polymethylsilsesquioxane resin powder.

CONSTITUTION: The heating temp. for the toner is required to be the temp. at which the scorch and property deterioration of paper do not arise. A binder resin of a low softening temp. is used for this purpose. The resin having the low softening temp. condenses by easily receiving the influence of heat, moisture, pressure, etc. Blocking and caking are inevitably liable to arise with such resin. This toner is thereupon provided with the fluidity by interposing the pulverous polymethylsilsesquioxane powder having ≥ 500 deg.C softening temp. and several μ m grain size between the toner particles. Since the pulverous polymethylsilsesquioxane particles are used to the extent of sprinkling the same on the toner, the use of said particles at 0.01-3wt% of the toner weight suffices. These pulverous particles are electrostatically stuck to the toner. The electrostatic chargeability is not affected at all even if such stuck material exists in the toner.

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PRODUCTION OF HEAT RESISTANT RESIN PATTERN

Patent number: JP62096942
Publication date: 1987-05-06
Inventor: FUKUYAMA SHUNICHI; others: 02
Applicant: FUJITSU LTD
Classification:
- **International:** G03C5/00; G03C1/71; G03C5/24
- **European:**
Application number: JP19850238324 19851024
Priority number(s):

Abstract of JP62096942

PURPOSE: To improve the heat and cracking resistances and the leveling property by mixing silylated polysilsesquioxane with an aromatic azido or sulfonylazido compound to prepare photosensitive silicone resin.

CONSTITUTION: A substrate to be processed is coated with a liq. photosensitive resin prep'd. by mixing silylated polysilsesquioxane with an aromatic azido or sulfonylazido compound and the resulting film is selectively exposed and developed to form a pattern. This pattern is heat treated in an inert atmosphere to decompose and remove the photosensitive compound in the resin. The polysilsesquioxane has superior heat resistance and is proof against ≥ 500 deg.C. Since the aromatic azido or sulfonylazido compound added to provide photosensitivity remains in the resin pattern, the pattern is heated to a temp. above the decomposition temp. of the photosensitive agent. The photosensitive agent vanishes and only the polymer having superior heat and pressure resistances remains.

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LIQUID CRYSTAL DISPLAY ELEMENT

Patent number: JP62161124
Publication date: 1987-07-17
Inventor: YOKOKURA HISAO; others: 04
Applicant: HITACHI LTD
Classification:
- international: G02F1/133
- european:
Application number: JP19860002098 19860110
Priority number(s):

Abstract of JP62161124

PURPOSE: To obtain a liquid crystal element suitable for mass production without generating scattering domain by using orientation control film comprising an org. high molecular material having a large tilt angle by means of the rubbing method.

CONSTITUTION: The liquid crystal display element comprises a substrate, an electric field impressing means, an orientation control layer, and a nematic liquid crystal layer being usable for all purposes including display element, light modulation element, etc., wherein said orientation control layer is constituted of film of long-chain hydrocarbon polymer. The orientation control film comprising a specified poly phenyl silsesquioxane having ≥ 3 deg. tilt angle is constituted of a polymer having $\geq 2:1$ proportion of C₆H₅ group to CH₃ group in the side chain along the minor axis direction of the molecule. The polymer may be used in combination with a silane coupling agent, SiO₂, Al₂O₃, TiO₂, etc. The orientation film is formed similarly as the TN mode system by the general dipping method, rotation coating method, spray method, printing method, etc., then rubbing the coated material.

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HEAT RESISTANT PHOTSENSITIVE RESIN COMPOSITION AND FORMATION OF INSULATING LAYER

Patent number: JP62215944
Publication date: 1987-09-22
Inventor: FUKUYAMA SHUNICHI; others: 02
Applicant: FUJITSU LTD
Classification:
- International: G03C1/71; G03F7/08
- european:
Application number: JP19860059754 19860318
Priority number(s):

Abstract of JP62215944

PURPOSE: To obtain a heat resistant photosensitive resin composition capable of forming a photosensitive film having satisfactory heat and crack resistances and facilitating the formation of multilayered wiring by mixing specified polysilsesquioxane with an aromatic azido compound and an aromatic sulfonyl compound.

CONSTITUTION: Polysilsesquioxane represented by the formula (where n is an integer of 10-1,000 and each of R1 and R2 is methyl, acryloyl or methacryloyl) is mixed with an aromatic azido compound and an aromatic sulfonyl compound to obtain a heat resistant photosensitive resin composition. This composition is applied to a base material of a semiconductor or the like having a formed wiring layer, and it is exposed, developed and heat treated at 350 deg.C for 1hr in an inert gaseous atmosphere to form an insulating layer. The preferred total amount of the aromatic azido compound and the aromatic sulfonyl compound in the heat resistant photosensitive resin composition is 5-20pts.wt. per 100pts. wt. silylated polysilsesquioxane. In case of <5pts.wt., the sensitivity is lowered. In case of >20pts.wt., the film forming property after heat treatment is deteriorated.

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PATTERN FORMING METHOD

Patent number: JP62276543
Publication date: 1987-12-01
Inventor: KOSHIBA MITSUNOBU; others: 03
Applicant: JAPAN SYNTHETIC RUBBER CO LTD
Classification:
- international: G03C1/71; G03C5/00; G03F7/00; G03F7/10
- european:
Application number: JP19860119363 19860526
Priority number(s):

Abstract of JP62276543

PURPOSE: To improve sensitivity and resolution against radiations by forming a leveled layer on a substrate, and forming a resist film contg. a specific radiation sensitive organopolysiloxane on the leveled layer.

CONSTITUTION: The leveled layer which has a high melting temp. and hardness, and is composed of org. polymer having the levelling ability is formed on a substrate. The resist film contg. the radiation sensitive organopolysiloxane having a structure shown by formula I formed on the levelled layer. In the formula, R<1> and R<2> are each an aromatic compd. residue, a heterocyclic ring compd. residue, a hydrocarbon residue or a halogenated hydrocarbon residue, R<3> and R<4> are each a hydrocarbon residue or a halogenated hydrocarbon residue, (a) and (b) are an integer of 0 or 1.

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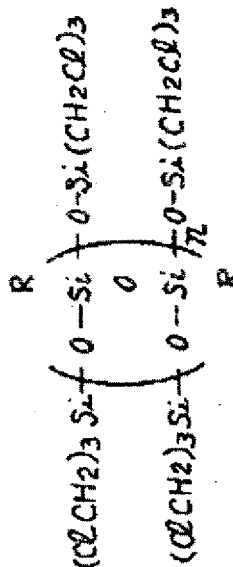
NEGATIVE TYPE RESIST COMPOSITION

Patent number: JP62299965
 Publication date: 1987-12-26
 Inventor: SHIBA SHOJI; others: 04
 Applicant: FUJITSU LTD
 Classification:
 - International: G03C1/71; G03C1/00; G03C1/71; G03F7/10
 - european:
 Application number: JP19860145847 19860620
 Priority number(s):

Abstract of JP62299965

PURPOSE: To enable a negative type electron beam resist enhanced in sensitivity to be put to practical use by chloromethylsilylating the residual hydroxyl groups of polyvinylsilsesquioxane or polyallylsilsesquioxane.

CONSTITUTION: Since the polyvinylsilsesquioxane and polyallylsilsesquioxane have ladder structures and sensitivity to electron beams and introduction of chloromethylsilyl groups enhances sensitivity, said groups are introduced into said polymer as represented in the structural formulae, shown on the right, of said polymers chloromethylsilylated for the residual hydroxyl groups, R being vinyl or allyl, thus permitting the negative type electron beam resist high in sensitivity and resolution to be put to practical use, and consequently, semiconductor integrated circuits, such as LSI or VLSI, to be enhanced in precision and lowered in cost.



このRはビニル基またはアリル基

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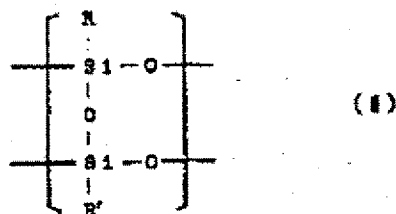
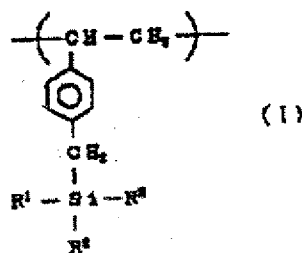
PHOTOSENSITIVE RESIN COMPOSITION

Patent number: JP63005337
 Publication date: 1988-01-11
 Inventor: ATODA NOBUFUMI; others: 04
 Applicant: AGENCY OF IND SCIENCE & TECHNOL; others: 01
 Classification:
 - International: G03C1/71; C08F8/42; C08L25/04; G03C1/71; G03F7/10
 - european:
 Application number: JP19860148095 19860626
 Priority number(s):

Abstract of JP63005337

PURPOSE: To obtd. the titled composition having a high silicon content and improved anti-oxygen plasma and anti-dry etching properties and resolution by incorporating a specific polysilsesquioxane to a specific styrene polymer.

CONSTITUTION: The polysilsesquioxane which has a repeating unit shown by formula II, and contains at least one of alkenyl group as at least one of the repeating unit selected among the repeating units is incorporated to the specific styrene polymer having the repeating unit shown by formula I. In formula I, R<1>-R<3> are each the same or the different with each other, and are 1C-6C alkyl group or 2C-6C alkenyl group. At least one of R<1>-R<3> groups is alkenyl group. And, in formula II, R and R' are the same or the different with each other, and are alkyl, aryl or alkenyl group. Thus, the resist pattern having a high silicon content is obtd.



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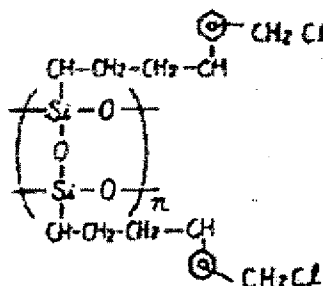
ELECTRON BEAM RESIST COMPOSITION

Patent number: JP63006544
 Publication date: 1988-01-12
 Inventor: SAITO KAZUMASA; others: 04
 Applicant: FUJITSU LTD
 Classification:
 - International: G03C1/71; G03F7/00
 - european:
 Application number: JP19860150334 19860626
 Priority number(s):

Abstract of JP63006544

PURPOSE: To obtain the titled composition having an excellent resolution by incorporating a silicone polymer which is obtd. by copolymerizing polyvinylsilsesquioxane and chloromethylstyrene to the titled composition as a negative type resist of an upper layer of the two layer structure.

CONSTITUTION: The silicone polymer which is shown by the formula, and has a polymerization degree of about 25,000 is obtd. by copolymerizing polyvinylsilsesquioxane and chloromethylstyrene. The result film is prepared by dissolving the silicone polymer to a solvent, followed by coating a silicon wafer with the obtd. solution. The obtd. resist has about 2.4m μ C sensitivity and the resolution of a line and space of about 0.4m μ m. The negative resist which has the high sensitivity and resolution, and can be produced VLSI with a good workability is obtd. by incorporating the silicone polymer to the resist film.



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COATING COMPOSITION AND PRODUCTION THEREOF

Patent number: JP63046272
Publication date: 1988-02-27
Inventor: YAMADA KINJI; others: 03
Applicant: JAPAN SYNTHETIC RUBBER CO LTD
Classification:
- **International:** C09D3/82
- **European:**
Application number: JP19860189490 19860814
Priority number(s):

Abstract of JP63046272

PURPOSE: To produce the titled composition, containing a condensate of a specific organoalkoxysilane, colloidal alumina, water and alcohol in a specific proportion and having improved heat resistance, adhesive property, preservation stability, etc., and capable of applying films having a high hardness to stainless steel, etc.

CONSTITUTION: A composition, obtained by containing (A) 100pts.wt. (expressed in terms of organoalkoxysilane) organopolysiloxane which is a condensate of an organoalkoxysilane, expressed by the formula $\text{RSi}(\text{OR}')_3$ (R is 1-8C organic group; R' is 1-5C alkyl or 1-4C acyl) and having 3,000-50,000 weight-average molecular weight expressed in terms of polystyrene, (B) 5-50pts.wt. (solid content) colloidal alumina, (C) 10-80pts.wt. [including water in the component (B)] water and (D) ≥ 120 pts.wt. alcohol and curable at 80-300 deg.C for 10-120min without gelatinizing for a long period in spite of water contained therein and usable in various materials.

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PRODUCTION OF RUBBER BLEND

Patent number: JP63072745
Publication date: 1988-04-02
Inventor: UMEDA ITSUKI; others: 03
Applicant: JAPAN SYNTHETIC RUBBER CO LTD; others: 01
Classification:
- **International:** C08L23/16; C08K3/36
- **European:**
Application number: JP19860216749 19860912
Priority number(s):

Abstract of JP63072745

PURPOSE: To improve the heat resistance, mechanical strength and roll processability of the resulting rubber blend, by blending a polydiorganosiloxane with an ethylene/alpha-olefin copolymer rubber and fine silica powder in a specified ratio by a specified method.

CONSTITUTION: A rubber blend contg. 100pts.wt. polymer component composed of 5-50wt% polydiorganosiloxane (I) and 95-50wt% ethylene/alpha-olefin copolymer rubber (II) and 15-100pts.wt. fine silica powder (III) is prepd. by the following method. namely, in the first step, at least 30pts.wt. (per 100pts.wt. component (I)) component (III) is kneaded with the whole of the component (I). In the second step, the whole of the component (II) and the remainder of the component (III), if any, are added and the mixture is kneaded. As the component (I), those having a degree of polymn. of 1,000-20,000 and contg. 0.02-20mol% of a siloxane unit having a monovalent aliph. unsaturated hydrocarbon group are preferred.

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PATTERN FORMING METHOD

Patent number: JP63106649
Publication date: 1988-05-11
Inventor: KOSHIBA MITSUNOBU; others: 02
Applicant: JAPAN SYNTHETIC RUBBER CO LTD
Classification:
- international: G03C1/71; G03F7/10
- european:
Application number: JP19860250828 19861023
Priority number(s):

Abstract of JP63106649

PURPOSE: To form a fine resist pattern with high accuracy by forming a flattening layer on a substrate, and a resist layer contg. specific organopolysiloxane on the flattening layer, and by etching the flattening layer after radiating radiations and developing the resist.

CONSTITUTION: The titled method lies in forming the flattening layer on the substrate, and forming the resist layer contg. the organopolysiloxane having the structure shown by formula 1 on the flattening layer, followed by etching the flattening layer, after radiating radiation and developing the resist layer. In formula 1, R<1> and R<2> are each an aromatic compd. residual group or a heterocyclic ring compd. residual group, R<3> is 1-10C hydrocarbon residual group or 1-10C halogen hydrocarbon residual group, R<4> is 1-6C hydrocarbon residual group or 1-6C halogenated hydrocarbon residual group, X is hydroxy group or a group capable of hydrolysing, (a) and (b) are each 0 or 1. Thus, the high resolution of a photosensitive material against radiations can be obt'd., and the pattern having a high shape ratio can be formed.

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COATING COMPOSITION AND PRODUCTION THEREOF

Patent number: JP63117074
Publication date: 1988-05-21
Inventor: HANAOKA HIDEYUKI; others: 03
Applicant: JAPAN SYNTHETIC RUBBER CO LTD
Classification:
- International: C09D3/82
- european:
Application number: JP19860259610 19861101
Priority number(s):

Abstract of JP63117074

PURPOSE: To obtain the title compsn. which has excellent shelf stability and gives a coating film having excellent hardness, transparency, gloss, weather resistance, adhesion, etc., by mixing an organoalkoxysilane with a dispersion of colloidal silica in a hydrophilic solvent, water and a hydrophilic org. solvent, conducting hydrolysis and polycondensation and adjusting concentration.

CONSTITUTION: 100pts. (by weight; the same applies hereinbelow) organoalkoxysilane (A) of the formula (wherein R is a 1-8C org. group; R<1> is a 1-5C alkyl or a 1-4C acyl) is mixed with 5-50pts. (on a solid basis) dispersion (B) of 10-40wt% colloidal silica in a hydrophilic org. solvent, obtd. by dispersing high-purity silicic anhydride (a) having an average particle size of 5-30mmu in a hydrophilic solvent (b) (e.g., an alcohol), 5-55pts. water (C) and 15-500pts. said hydrophilic org. solvent (D), and hydrolysis and polycondensation are conducted to give an organopolysiloxane having a weight-average MW of 500-5,000 (in terms of PS). If desired, the component C and/or the component D are/is added thereto and the total amount of the component C is adjusted to 1-50pts. and that of the component D is adjusted to 100-1,000pts.

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PROCESS FOR FORMING RESIST PATTERN

Patent number: JP63118739
Publication date: 1988-05-23
Inventor: SHIBA SHOJI; others: 04
Applicant: FUJITSU LTD
Classification:
- international: G03C1/71; G03C1/00; G03C1/71; H01L21/30
- european:
Application number: JP19860263961 19861107
Priority number(s):

Abstract of JP63118739

PURPOSE:To form a resist pattern having superior definition by providing an intermediate layer comprising a mixture consisting of a specified silicone resin and a monoazide or bisazide compd. to a three layered resist.

CONSTITUTION:A mixture consisting of a silicone resin expressed by the formula I with the monoazide or bisazide compd. is used for the intermediate layer of the three layered resist. In the formula I, R is a vinyl or allyl group; n is a positive integer, which is pref. 10-1,000, more pref. 50-500. Suitable material for the lowest layer of the three-layered resist is phenol-novolak resin, etc. On one hand, conventional resist may be used for the upper layer of the resist. By this method, a resist pattern having high resolution power can be formed.

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COATING FLUID FOR FORMING HIGH-PURITY SiO₂ FILM

Patent number: JP63120774
Publication date: 1988-05-25
Inventor: ADACHI HIROSHI; others: 03
Applicant: MITSUBISHI ELECTRIC CORP
Classification:
- international: C09D3/82; H01L21/312; H01L21/316
- european:
Application number: JP19860266212 19861107
Priority number(s):

Abstract of JP63120774

PURPOSE: To obtain the title coating fluid capable of forming at relatively low temperatures a high-purity SiO₂ film of good quality having excellent electrical characteristics and low internal stress, by mixing a specified high-purity silicone ladder polymer containing little impurities with an organic solvent.

CONSTITUTION: The title coating fluid is obtained by mixing a silicone ladder polymer which contains an alkali metal, iron, lead, copper, and a hydrogen halide each in an amount of 0.1ppm or less and uranium and thorium each in an amount of 0.1ppb or less and is shown by the formula (wherein R1 is phenyl or lower alkyl; R2 is H, methyl or ethyl; n is 2-1,000) (e.g., polyphenylsilsesquioxane) with an organic solvent (e.g., toluene). This coating fluid is capable of forming an SiO₂ film at a low temperature of about 600 deg.C; therefore, it is useful for realizing a semiconductor manufacturing process at a lower temperature.

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COATING COMPOSITION

Patent number: JP63137972
Publication date: 1988-06-09
Inventor: YAMADA KINJI; others: 03
Applicant: JAPAN SYNTHETIC RUBBER CO LTD
Classification:
- International: C09D3/82
- european:
Application number: JP19860285422 19861129
Priority number(s):

Abstract of JP63137972

PURPOSE: To provide a coating composition capable of giving on metal surfaces, etc., transparent and glossy coating films of outstanding alkali and water resistances, corrosionproofness, insulation, etc., comprising specific components including organopolysiloxane and colloidal silica in specified proportions.

CONSTITUTION: For example, (A) 100pts.wt. of an organoalkoxysilane of formula I (R is 1-8C organic group; R' is 1-5C alkyl, etc.) is incorporated with (B) 5-50pts.wt. on a solid basis of colloidal silica dispersed in a hydrophilic organic solvent (pref., i-propyl alcohol), (C) 0.1-50pts.wt. of water and (D) 50-500pts.wt. of the same solvent as that present in the component B (including the solvent in the component B) followed by hydrolysis and polycondensation to convert the component A into an organopolysiloxane. The resulting system is incorporated with (E) 0.01-5pts.wt. of at least one kind of compound selected from 2-3 nitrogen atoms-contg. heterocyclic compounds (pref., benzimidazole) and aluminum compounds of formula II (R3 and R4 are each alkyl; R5 is alkyl, etc.; n is 0-3) (partially hydrolyzed products or partially condensate therefrom) (pref., ethyl acetoacetatealuminum diisopropylate), thus obtaining the objective coating composition.

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NEGATIVE TYPE RESIST COMPOSITION

Patent number: JP63149636
Publication date: 1988-06-22
Inventor: WATABE KEIJI; SAITO KAZUMASA; KAWASAKI YOKO; FUKUYAMA SHUNICHI; SHIBA SHOJI
Applicant: FUJITSU LTD
Classification:
- international: G03C1/00; G03C1/71
- european: G03F7/075M
Application number: JP19860296812 19861215
Priority number(s): JP19860296812 19861215

Abstract of JP63149636


PURPOSE: To improve the coatability of a resist compsn. and to enhance sensitivity and definition by using a specific silicone compd. as an upper layer resist. **CONSTITUTION:** A soln. of 1-50wt% silicone compd. expressed by the formula is used as the upper layer resist compsn. for a negative type resist having two-layered structure. In the formula, R denotes alkyl of 1-3C or alkenyl of 2-4C n denotes 10-100,000. The silicone compd. is obtd. by acetylating the polysilsesquioxane having a hydroxy group at the terminal. The compsn. consisting of a methyl isobutyl ketone soln. or the like of said silicone compd. has good preservable stability and coatability. The upper layer resist having the high sensitivity and high definition is thus obtd.

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METHOD OF FORMING MULTILAYER CERAMIC FILM

Patent number: JP63152130
Publication date: 1988-06-24
Inventor: ROOREN ANDORIYUU HARUSUKA; KIISU UINTON
MAIKERU; REO TAAHEI
Applicant: DOW CORNING
Classification:
- **international:** H01L21/312; H01L21/314
- **europaen:** C23C18/12
Application number: JP19870301616 19871201
Priority number(s): US19860938678 19861204

Also published as:

 EP0270231 (A2)
US4911992 (A1)
ES2010234 (A6)
EP0270231 (A3)
EP0270231 (B1)

Abstract not available for JP63152130

Abstract of corresponding document: **US4911992**

This invention relates to materials produced by diluting in a solvent a platinum or rhodium catalyzed preceramic mixture of a hydrogen silsesquioxane resin and a metal oxide precursor selected from the group consisting of an aluminum alkoxide, a titanium alkoxide, and a zirconium alkoxide. The preceramic mixture solvent solution is applied to a substrate and ceramified by heating. One or more ceramic coatings containing silicon carbon, silicon nitrogen, or silicon carbon nitrogen can be applied over the ceramified SiO₂/metal oxide coating. A CVD or PECVD top coating can be applied for further protection. The invention is particularly useful for coating electronic devices.

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RUBBER COMPOSITION

Patent number: JP63172757
Publication date: 1988-07-16
Inventor: KAWADA TAKASHI; HIKITA MASAHIRO; MAKINO KENYA
Applicant: JAPAN SYNTHETIC RUBBER CO LTD
Classification:
- international: C08L23/16; C08L51/06; C08L83/00
- european:
Application number: JP19870003037 19870109
Priority number(s): JP19870003037 19870109

Abstract of JP63172757

PURPOSE: To provide a rubber compsn. having excellent resistance to oils, heat and weather and mechanical strengths, by blending a specified graft copolymer with a silicone rubber and an ethylene/alpha-olefin/(nonconjugated diene) copolymer. **CONSTITUTION:** Ethylene (i) is copolymerized with an alpha-olefin (ii) (e.g., propylene-1), an unsaturated silane compd. (iii) having at least one Si-X bond (wherein X is Cl or Br) and optionally, a non-conjugated diene to obtain a copolymer (a). The component (a) is reacted with a modified silicone oil (h) having hydroxyl groups at both terminals at 0-90 deg.C under a pressure not higher than 10atm for 30min to 1hr to obtain a graft copolymer (A) in which its main chain is composed of an ethylene/alpha-olefin/(non-conjugated diene) copolymer and its side chain is composed of a polysiloxane. 5-85pts.wt. component A is blended with 10-90pts.wt. silicone rubber (B) (e.g., methylvinylsilicone rubber) and 0-70pts.wt. ethylene/alpha-olefin/(non-conjugated diene) copolymer (C) having a Mooney viscosity (100 deg.C) of 5-150.

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PRINTED WIRING BOARD

Patent number: JP63173382
Publication date: 1988-07-16
Inventor: SAITO KAZUMASA; FUKUYAMA SHUNICHI; SHIBA
SHOJI; KAWASAKI YOKO; WATABE KEIJI
Applicant: FUJITSU LTD
Classification:
- **international:** B32B7/02; B32B27/00; C08G77/04; H05K1/03
- **european:**
Application number: JP19870005413 19870113
Priority number(s): JP19870005413 19870113

Abstract not available for JP63173382

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ELASTOMER COMPOSITION CONTAINING SILANE-CONTAINING COMPOUND

Patent number: JP63199251
Publication date: 1988-08-17
Inventor: KAWADA TAKASHI; HIKITA MASAHIRO; MAKINO KENYA
Applicant: JAPAN SYNTHETIC RUBBER CO LTD
Classification:
- **International:** C08L21/00; C08L51/00
- **European:**
Application number: JP19870032165 19870214
Priority number(s): JP19870032165 19870214

Abstract of JP63199251

PURPOSE: To obtain the titled composition having sharply improved heat resistance and suitable for electrical components and automobile components, by blending a reaction product of a specific silane compound and polysiloxane with an elastomer. **CONSTITUTION:** 1-20pts.wt. reaction product of (A) silane compound containing at least one C=C double bonds and at least one Si-X group (X is Cl or Br) in a molecule and (B) polysiloxane containing at least one hydroxyl group and/or amino group in a molecule is blended with 100pts.wt. elastomer. (2-propenyl) dimethylchlorosilane, 5-trichlorosilyl-2-norbornene, etc., and poly dimethylsiloxane-ended silanol, etc., are used as components (A) and (B), respectively and a condensation reaction is carried out in a ratio of (A)/(B) of 1/3-2.

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PRODUCTION OF FLAME-RETARDANT PHENOLIC RESIN LAMINATE

Patent number: JP63207829
Publication date: 1988-08-29
Inventor: KITAJIMA MASATO; AMANO SABURO; TSUKANISHI KENJI
Applicant: HITACHI CHEMICAL CO LTD
Classification:
- **International:** B29C67/14; B32B27/04; C08J5/24
- **European:**
Application number: JP19870039471 19870223
Priority number(s): JP19870039471 19870223

Abstract of JP63207829

PURPOSE: To obtain the titled laminated sheet having excellent flame-retardancy and punchability, etc., by adding and reacting a brominated epoxy resin as a flame-retardant to a phenolic resin before resol-forming reaction, impregnating or applying the obtained phenolic resin varnish to a substrate and hot forming the product. **CONSTITUTION:** A phenolic resin varnish (e.g. tung oil-modified resol phenolic resin) produced by the addition and reaction of a brominated epoxy resin as a flame retardant before the resol-forming reaction is impregnated or applied to a paper substrate at a specific rate and the obtained prepreg is hot formed to obtain a laminated sheet. The mold-releasability can be further improved by adding 0.5-2wt.% mold-release agent such as lauric acid, stearic acid salt, etc., to the varnish.

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PRODUCTION OF HEAT-RESISTANT OLEFIN COPOLYMER

Patent number: JP63238133
Publication date: 1988-10-04
Inventor: KAWADA TAKASHI; HIKITA MASAHIRO; MAKINO KENYA
Applicant: JAPAN SYNTHETIC RUBBER CO LTD
Classification:
- **international:** C08F210/00; C08F210/02; C08F230/08; C08F236/20; C08G81/02
- **european:**
Application number: JP19870072666 19870326
Priority number(s): JP19870072666 19870326

Abstract of JP63238133

PURPOSE: To obtain the titled copolymer as a heat-resistant rubber low cost, by condensation reaction between a hydroethyl group-contg. polysiloxane and a copolymer prepared by copolymerization between ethylene, alpha-olefin, etc. and specific silane compound followed by termination of the polymerization with an alcohol. **CONSTITUTION:** First, an ethylene-alpha-olefin-alkoxysilane compound-(non-conjugated diene) copolymer is prepared by copolymerization, using a Ziegler-Natta catalyst, between (A) ethylene, (B) an alpha-olefin and/or non-conjugated diene and (C) a silane compound of formula I (n is integer ≥ 1 ; X is Cl or Br; R<1> is H or 1-5C alkyl) and/or a second silane compound of formula II (Cl is integer 0-2; k is integer 0-6; R<2>-R<4> are each H or 1-5C alkyl) followed by termination of the polymerization with a 1-10C-alcohol. Thence, 100pts.wt. of this copolymer is blended with 2-50pts.wt. of a hydroxyl group-contg. polysiloxane followed by condensation reaction, thus obtaining the objective copolymer.

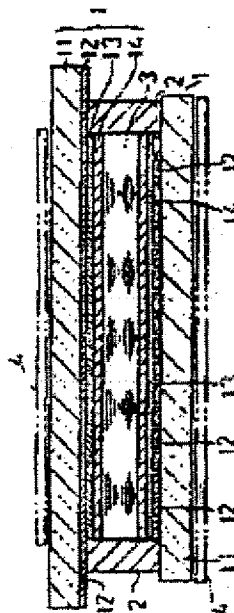
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LIQUID CRYSTAL DISPLAY DEVICE

Patent number: JP63287823
Publication date: 1988-11-24
Inventor: NARITA KENICHI; FUKUTANI KENJI
Applicant: SANYO ELECTRIC CO.; TOKYO SANYO ELECTRIC CO
Classification:
- **International:** G02F1/133
- **European:**
Application number: JP19870123331 19870520
Priority number(s): JP19870123331 19870520

Abstract of JP63287823

PURPOSE: To improve the insulating property of the titled device by interposing an intermediate layer which is composed of a polyorganosilsesquioxane having a ladder type structure or a crosslinking structure between ladders, between an electrode and an orientation film mounted on a substrate plate.
CONSTITUTION: A glass plate 11 mounted with the electrode 12 which is patterned thereon is applied with a solution dissolved the ladder type silicone oligomer in a butyl cellosolve by an offset printing method, followed by allowing it to stand at ordinary temperature, and drying in a cleaned oven, and then is calcined to form the intermediate layer 13. Subsequently, the obt'd. plate is applied with a polyimide type solvent by the printing method, allowed to stand, dried and calcined to form a film. The orientation film 14 is obt'd. by rubbing the surface of said film. At this time, the intermediate layer is controlled so as to be the film thickness of 400-750 Angstrom. Thus, the stable electrochemical characteristic of the title device is obt'd., and the insulating strength thereof is improved.



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THERMOPLASTIC ELASTOMER COMPOSITION

Patent number: JP63289045
Publication date: 1988-11-25
Inventor: KAWADA TAKASHI; HIKITA MASAHIRO; MAKINO KENYA
Applicant: JAPAN SYNTHETIC RUBBER CO LTD
Classification:
- **international:** C08L23/00; C08L23/26
- **europaen:**
Application number: JP19870124927 19870521
Priority number(s): JP19870124927 19870521

Abstract of JP63289045

PURPOSE: To obtain the title composition excellent in thermal aging resistance, by mixing a thermoplastic polyolefin resin with a specified modified ethylene/alpha-olefin/(nonconjugated diene) copolymer. **CONSTITUTION:** A mixture of ethylene (a) with an alpha-olefin (b) and, optionally, a nonconjugated diene is copolymerized with a silane compound of formula I (wherein $n \geq 1$, m is 0-2, X is Cl or Br, R<1> is H or a 1-5C alkyl) and/or a silane compound (c) of formula II (wherein l is 0-2, k is 0-6, and R<2-4> are each R<1>) at 0-100 deg.C in the presence of a Ziegler/Natta catalyst, and a polysiloxane compound (d) of formula III (wherein p and q are each 5-10,000, r and s are each 0-1, R<5-10> are each a 1-6C alkyl, phenyl or vinyl and R<11-14> are each R<1>) is grafted onto the obtained copolymer to obtain a modified ethylene/alpha-olefin/(conjugated diene) copolymer (B). 100pts.wt. mixture comprising 15-70pts.wt. thermoplastic polyolefin resin (A) and 30-85pts.wt. component B is mixed with 0.1-10pts.wt. crosslinking agent (C) which is an organic peroxide or a thermosetting resin to obtain the title composition in which component B is crosslinked with component C.

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COATING COMPOSITION

Patent number: JP63308077
Publication date: 1988-12-15
Inventor: HANAOKA HIDEYUKI; YAMAMOTO KAZUO; SUZUKI
TOSHIYUKI
Applicant: JAPAN SYNTHETIC RUBBER CO LTD
Classification:
- International: C09D3/82
- european:
Application number: JP19870303087 19871202
Priority number(s): JP19870000209 19870106; JP19870303087 19871202

Abstract of JP63308077

PURPOSE: To obtain the titled composition having excellent storage stability, curable at low temperature and forming a coating film having high hardness and excellent smoothness, by adding an organoalkoxysilane, colloidal alumina and an organopolysiloxane, etc., to an organic solvent.

CONSTITUTION: The objective composition can be produced by adding (A) 100pts. wt. (in terms of organoalkoxysilane) of an organoalkoxysilane of formula $\text{RSi}(\text{OR}<1>)_3$ (R is 1-8C organic group; R<1> is 1-5C alkyl or 1-4C acyl), its hydrolyzate and/or their partial condensate, (B) 5-50pts.wt. (solid basis) of colloidal alumina, (C) 2-200pts.wt. of an organopolysiloxane having ≥ 1 reactive group in one polymer molecule and/or (D) 3-6,000pts.wt. of a silyl group- containing vinyl polymer having ≥ 1 silyl group having silicon atom. bonded to hydrolyzable group in one polymer molecule to (E) an organic solvent.

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COMPOSITION FOR COATING

Patent number: JP64001769
Publication date: 1989-01-06
Inventor: YAMADA KINJI; OTAKI YASUSHI; NAGATA MASAKI
Applicant: JAPAN SYNTHETIC RUBBER CO LTD
Classification:
- international: C08L23/26; C08L83/04; C09D3/82
- european:
Application number: JP19870155317 19870624
Priority number(s): JP19870155317 19870624

Abstract of JP64001769

PURPOSE: To obtain the titled transparent composition having excellent heat- resistance, water-resistance, storage stability, etc., by adding a specific organopolysiloxane, a partial hydrolyzate of a zirconium compound and a silyl group-containing vinyl resin to a hydrophilic organic solvent.

CONSTITUTION: The objective composition is produced by adding (A) an organopolysiloxane consisting of a condensate of 100pts.wt. of an organosilane of formula I (R is 1-8C organic group; R' is 1-5C alkyl or 1-4C acyl), (B) a partial hydrolyzate produced by reacting 0.05-20pts.wt. of a zirconium compound of formula II and/or formula III (R" is 2-5C alkyl) with water in the presence of beta-diketones and/or beta-ketoesters and (C) 2-200pts.wt. of a silyl group-containing vinyl resin containing ≥ 1 silyl group having silicon atom bonded to a hydrolyzable group at molecular terminal or on side chain based on 1mol. of the polymer to (D) a hydrophilic organic solvent.



I



II



III

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